

## EXECUTIVE SUMMARY

On July 1, 2005, the Division for Air Quality received an initial Title V permit application from Somerset Refinery, Inc. to operate a petroleum refinery in Somerset, Kentucky.

The refinery consists of the following permitted emission units and pollution control devices:

- (a) One (1) refinery fuel gas fired 400 HP Continental Boiler, identified as EP01 and installed in 1997, with a maximum heat input capacity of 13.4 mmBtu/hr, equipped with low-NOx burners and exhausting to one (1) stack S1;
- (b) One (1) refinery fuel gas fired Crude Distillation Heater, identified as EP02 and installed in 1974, with a maximum heat input capacity of 13.7 mmBtu/hr, equipped with low-NOx burners and exhausting to one (1) stack S2;
- (c) One (1) flare, rated at a maximum capacity of 20.25 mmBtu/hr, identified as EP04, used to dispose of excess gas generated during normal operations, startups, shutdown and emergencies, and exhausting through stack S4;
- (d) One (1) refinery fuel gas fired Crude Distillation Heater, identified as EP21 and installed in 1980, with a maximum heat input capacity of 10.0 mmBtu/hr, equipped with low-NOx burners and exhausting to one (1) stack S21;
- (e) One (1) refinery fuel gas fired Gasoline Hydrotreater Heater, identified as EP22 and installed in 1987, with a maximum heat input capacity of 6.0 mmBtu/hr, equipped with low-NOx burners and exhausting to one (1) stack S22;
- (f) One (1) refinery fuel gas fired Catalytic Reforming Heater, identified as EP23 and installed in 1975, with a maximum heat input capacity of 5.0 mmBtu/hr, equipped with low-NOx burners and exhausting to one (1) stack S23;
- (g) One (1) refinery fuel gas fired Catalytic Reforming Heater, identified as EP24 and installed in 1975, with a maximum heat input capacity of 3.0 mmBtu/hr, equipped with low-NOx burners and exhausting to one (1) stack S24;
- (h) One (1) refinery fuel gas fired Catalytic Reforming Heater, identified as EP25 and installed in 1975, with a maximum heat input capacity of 1.3 mmBtu/hr, equipped with low-NOx burners and exhausting to one (1) stack S25;
- (i) One (1) refinery fuel gas fired Kerosene Hydrotreater Heater, identified as EP26 and installed in 1983, with a maximum heat input capacity of 2.0 mmBtu/hr, equipped with low-NOx burners and exhausting to one (1) stack S26;
- (j) One (1) Crude Oil Distillation Column, identified as EP35 and installed in 1940, with a maximum capacity of 5,500 barrels per day, and producing naphtha, kerosene, diesel, heavy gas oil (HGO) and no. 6 oil. All emissions from this unit are hard piped to EP02 and EP21;
- (k) One (1) Naphtha Hydrotreater, identified as EP36 and installed in 1956, with a maximum capacity of 1,540 barrels per day, and producing low sulfur naphtha. All emissions from this unit are hard piped to EP22;
- (l) One (1) Naphtha Reformer, identified as EP37 and installed in 1956, with a maximum capacity of 1,540 barrels per day, and producing gasoline blending stock and gasoline. All emissions from this unit are hard piped to EP23, EP24 and EP25;
- (m) One (1) Sulfur Removal Unit, consisting of a Sodium Hydro Sulfide (NaHS) Unit and Sulfa Treat Columns (backup sulfur removal system), identified as EP55 and installed in 1997,

with a maximum processing capacity of 250 cubic feet per minute high sulfur fuel gas (240 ppm H<sub>2</sub>S) and 0.2 gallons per minute sodium hydroxide (25%) solution (aqueous), and producing low sulfur plant fuel gas (less than 0.1 gr/dcf) and sodium hydro sulfide; and one (1) vertical fixed roof storage tank storing sodium hydro sulfide with storage capacity of 9,219 gallons, identified as Tank 200.

- (n) One (1) Tank Truck/Trailer Loading Rack, identified as EP06, consisting of the following:
  - (06a) Bottom Loading Rack constructed in July, 1993, consisting of two loading lanes with a total of six bottom loading arms, and equipped with John Zink Carbon Adsorption/Absorption Vapor Recovery Unit (VRU) controlling VOC and HAP emissions. Loading Diesel, Gasoline, Kerosene, and Naphtha.
  - (06b) Splash Loading Rack constructed in 1950's, consisting of two loading lanes. Loading Crude oil, Waste oil, No. 6 fuel oil, Heavy gas oil, and Naphtha.
- (o) Storage tanks
- (p) Pipeline equipment fugitive emissions

The potential to emit (as defined in 401 KAR 52:001, Section 1 (56)) volatile organic compounds (VOC), particulate matter (PM) and particulate matter less than 10 microns (PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen oxide (NO<sub>x</sub>), and carbon monoxide (CO) from the source is less than one hundred (100) tons per year. The potential to emit of any nonhazardous regulated air pollutant is less than 100 tons per year, any single HAP is less than ten (10) tons per year, and the combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is a minor source pursuant to the provisions of 401 KAR 52:040. However, the permittee has decided to voluntarily apply for, and request issuance of, a Title V permit pursuant to 401 KAR 52:020. This permit is the first issue Title V operating permit for this source.

The issuance of a federally enforceable Title V operating permit requires a preliminary determination and public notice. This has been done by the Division. An advertisement was placed in the Commonwealth Journal on June 14, 2006. The permittee submitted comments on the draft permit which have been addressed in the attached 'Response to Comments' document.

In conclusion, a thorough analysis has been made of all relevant information available which pertains to this application. The Division has concluded that the proposed operation will comply with all air quality regulations and requirements. Therefore, a final determination has been made to issue a proposed permit which will become final upon approval of the EPA.